UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/664,697	09/16/2003	Cheng Li		5503

39843 7590 04/01/2010

BELL & ASSOCIATES
58 West Portal Avenue No. 121
SAN FRANCISCO, CA 94127

EXAMINER	
GUPTA, ANISH	
ART UNIT	PAPER NUMBER
1654	

NOTIFICATION DATE	DELIVERY MODE
04/01/2010	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

abell@bell-iplaw.com
mkaser@bell-iplaw.com
info@bell-iplaw.com

UNITED STATES PATENT AND TRADEMARK OFFICE

Commissioner for Patents
United States Patent and Trademark Office
P.O. Box 1450
Alexandria, VA 22313-1450
www.uspto.gov

BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 10/664,697
Filing Date: September 16, 2003
Appellant(s): LI ET AL.

Richard C. Ekstrom
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 1/04/2010 appealing from the Office action mailed 12/23/08.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

For clarity of record, as Appellants have stated the MAP structure corresponds to the formula (R)n+1-(Z)-X-. In Claim 5, the R variable is recited "as any type and number of cell-binding ligands, anti-inflammatory structures, anti-thrombogenic structures, growth factor structures, adhesive or adhesion barrier structures, and their combinations." Later the same claim

recites that "each R when present in the MAP structure comprises a total of up to about 100 amino acids, and wherein each R1 to R16 comprises GTPGPQGIAGQRGVV (SEQ ID NO:1)." Thus, the claim limits the R variables to a peptide that comprises GTPGPQGIAGQRGVV. The claim is not interpreted for the R variables as a peptide that comprises GTPGPQGIAGQRGVV and further comprising any type and number of cell-binding ligands, anti-inflammatory structures, anti-thrombogenic structures, growth factor structures, adhesive or adhesion barrier structures, and their combinations. The interpretation that the claim limits the R variables to a peptide that comprises GTPGPQGIAGQRGVV is supported in the specification on page 11, lines 15-17, page 13, lines 1-3, and examples 1-9 on pages 57-74. On page 21 and 22, the specification recites the peptide GTPGPQGIAGQRGVV as a cell binding ligand. Thus, claim 5 is drawn to a MAP structure where each R variable is a peptide GTPGPQGIAGQRGVV which is a cell binding ligand.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

2003/0113478	DANG et al.	06-2003
WO 91/02537	BHATNAGAR et al.	03-1991

Tam, James P., et al. "Synthesis and Applications of Branched Peptides in Immunological Methods and Vaccines" Peptides: Synthesis, Structures, and Applications, B. Gutte (ed.), Academic Press (1995), pp. 455-500.

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 5-6, 10-13, 18-22, 25, 27-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dang et al. (US2003/0113478) in view of Tam (Peptides: synethesis, structures, applications).

The claims are drawn to a peptide comprising a MAP structure conjugated to a substrate.

The reference of Dang et al. teaches stents and grafts and means of coating them with a peptide. The reference specifically discloses coating a substrate with the sequence GTPGPQGIAGQRGVV (called P-15) having the ability to provide enhanced endothelial cell growth in vitro. The example characterized the P-15 surface treatment on ePTFE graft material, and measured its biological activity on the adhesion, migration and proliferation of endothelial cells in vitro. Also shown is the level of P-15 treatment degradation after simulated aging. The results show that this treatment method, characterized by the covalent attachment of a cell-adhesion peptide, was shown to be clean and stable. The surface treatment on PTFE grafts promoted the migration and proliferation of healthy endothelial cells. (see paragraph [0093]). The reference also states that the nature of the substrate to be coated may vary widely. At least a portion of at least one surface of the substrate 10 is coated with the functional group 16 or surface-modifying group 18 of the present invention. Preferably, the entire surface is coated with the functional group 16 or surface-modifying group 18. Suitable substrate materials include all non-porous or porous polymeric substrates, such as polyurethanes, polyamides, polyesters and polyethers, polyether-blockamides, polystyrene, polyvinyl chloride, polycarbonates, polyorganosiloxanes, polyolefins, polysulfones, polyisoprene, polychloroprene, polytetrafluorothylene (PTFE), polysiloxanes, fluorinated ethylene propylene, hexafluroropropylene, polyethylene, polypropylene, nylon, polyethyleneterephthalate, polyurethane, silicone rubber, polysulfone, polyhydroxyacids, polyimide, polyamide, polyamino acids, regenerated cellulose, corresponding copolymers and blends, and also natural and synthetic rubbers. A substrate of particular interest to the present invention is expanded PTFE (ePTFE) (see pagargraph [0057]). Note that these meet the limitation of claim 4. The difference between the prior art and the instant application is that the reference does not disclose the MAP structure.

However, Tam teaches the synthesis and application of branched peptides. The reference discloses the MAP structure where the Z variables are Lysine residues where dimeric (MAP2), tetrameric (MAP4), or octameric (MAP8) lysines are conjugated to a beta alanine residue (see page 458). The reference discloses that numerous peptides have been incorporated into MAP structures, differing in length and size (See table II). The peptides in the MAP structure (designated as the rectangle in figure 2) correspond to the R variable. The reference discloses that MAP structures can be applied in immunoassays, scradioagnosis, epitope mapping, inhibitors, artificial proteins, and various biochemical studies and purification methods (see page 474). The reference states, as inhibitors, branched peptides with clustered positive charges can lead to stronger binding than their monomers by allowing multiple points of contact (see page 476). Clustering could be achieved by adsorption on a surface or by coupling to a carrier or sepharose bead (see page 476). Observations of increased binding of branched peptides to cell surfaces, relative to the monomer, have been observed (see page 476).

It would have been obvious to one of ordinary skill in the art to incorporate the peptide GTPGPQGIAGPRGVV into a multimeric peptide structure (MAP) because branched peptides with clustered positive charges can lead to stronger binding than their monomers by allowing multiple points of contact and MAPs have increased binding to cell surfaces, relative to the monomer. Note that the primary reference discloses that the peptide promoted the migration and proliferation of healthy endothelial cells. There would have been a reasonable expectation of success because MAP branched peptides have been shown to have increased binding to cell surfaces. Tam teaches that the clustering, which allows for stronger binding than their monomers by allowing multiple points of contact, could be achieved by adsorption on a surface or by coupling

to a carrier or sepharose bead. Finally, Tam teaches numerous MAP structures and the means of making such structures.

Claims 3, 5, 10-13, 18-22, 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bhatnagar (WO9102537) in view of Tam (Peptides: synthesis, structures, applications).

The claims are drawn to a peptide comprising a MAP structure conjugated to a substrate.

The reference of Bhatnagar et al. teaches the peptide GTPGPQGIAGQRGVV (called P-15) (see abstract). The reference discloses that the peptide is useful in promoting vertebrate cell adhesion to a substrate when the substrate is coated with the peptide (see page 4 of the reference). The reference also states that the peptide can be used to raise monoclonal antibodies against the epitopic region defined by P-15 (see page 10). Regarding the use for promoting vertebrate cell adhesion, the peptides are attached to a substrate such as glass, plastic, ceramics, organic polymers, gels, silica (see page 11). The reference discloses the means of covalently lining the peptide to the substrate (see page 11). The difference between the prior art and the instant application is that the reference does not disclose the multimeric peptide structure MAP structure.

However, Tam teaches the synthesis and application of branched peptides. The reference discloses the MAP structure where the Z variables are Lysine residues where dimeric (MAP2), tetrameric (MAP4), or octameric (MAP8) lysines are conjugated to a beta alanine residue (see page 458). The reference discloses that numerous peptides have been incorporated into MAP structures, differing in length and size (See table II). The peptides in the MAP structure (designated as the rectangle in figure 2) correspond to the R variable. The reference discloses that MAP structure can be applied in immunoassays, seradioagnosis, epitope mapping, inhibitors, artificial proteins, and various biochemical studies and purification methods (see page 474). The reference states, as

inhibitors, branched peptides with clustered positive charges can lead to stronger binding than their monomers by allowing multiple points of contact (see page 476). Clustering could be achieved by adsorption on a surface or by coupling to a carrier or sepharose bead (see page 476). Observations of increased binding of branched peptides to cell surfaces, relative to the monomer, have been observed (see page 476).

It would have been obvious to one of ordinary skill in the art to incorporate the peptide GTPGPQGIAGPRGVV into a multimeric peptide structure (MAP) because branched peptides with clustered positive charges can lead to stronger binding than their monomers by allowing multiple points of contact and MAPs have increased binding to cell surfaces, relative to the monomer. Note that the primary reference discloses that the peptide is useful in promoting vertebrate cell adhesion to a substrate when the substrate is coated with the peptide. There would have been a reasonable expectation of success because MAP branched peptides have been shown to have increased binding to cell surfaces. Tam teaches that the clustering, which allows for stronger binding than their monomers by allowing multiple points of contact, could be achieved by adsorptoin on a surface or by coupling to a carrier or sepharose bead. Finally, Tam teaches numerous MAP structure and the means of making such structures.

(10) Response to Argument

The rejection under 35 U.S.C. 103(a) as being unpatentable over Dang et al. (US2003/0113478) in view of Tam (Peptides: synethesis, structures, applications).

Appellants' Arguments

For this Rejection, Appellants argue that neither Dang et al. nor Tam, either alone or in combination, would have suggested each and every element of the claimed subject matter. Appellants state that Tam describes procedures for making branched peptides for use in immunological methods and vaccines. Appellants conclude "Tam regards immunogenicity and antigenicity as necessary for producing the branched peptides described therein and draws a distinction between these two criteria."

Appellants also argue that Tam teaches away from the claimed subject matter. Appellants state that MAP structures in Tam are "inhibitors" due to the branched peptides with clustered positive charges. Appellants contended "from the teachings of Tam, one would expect that including GTPGPQGIAGQRGVV in a MAP structure would produce an inhibitor rather than the agonist recited by the present claim." Appellants argue that the rejection completely disregards this teaching away and there would not have been a reasonable expectation of success because Tam indicates "that no agonist activity in the MAP structure bound peptide would be expected." Appellants further state that the reasoning relied upon in the rejection ("one would be lead to believe that increased binding of branched peptides to proteins or cell surfaces compared to that of native proteins would be observed for all peptides not only inhibitors") does not establish that biological activity is retained in the MAP structure peptides.

Response to Appellants' Arguments

Appellants seem to be arguing that the disclosure of Tam is confined to the application of MAP structures for immunogenicity, antigenicity and inhibitors. However, this is simply not the case. The reference on page 474 states that "[m]ultimerization of peptides by branching as shown in

MAPs has found application in areas other than as immunogens and vaccines (Table VI). These applications may be grouped into five areas: immunoassay and serodiagnosis, epitope mapping, inhibitors, artificial proteins, and various biochemical studies and purification methods." In table VI, Tam teaches different peptides that have been utilized in MAP structures in differing biochemical studies, including artificial proteins such as minicollagen and synthetic enzymes (see page 475). Thus, based on Tam's teachings one would readily conclude that MAP structures could be utilized for a vast array of differing biochemical uses of peptides and not just immunogenicity and antigenicity.

Appellants also argue that Tam does not indicate that biological activity is retained in the branched peptides. However, this too is an improper reading of the reference. Nothing within Tam establishes Appellants' conclusion. Rather the teaching on page 474-475 would lead one to conclude that the bioactivity is retained for the MAP structured peptide since different peptides have been used in MAP structures and functioned in immunoassay and serodiagnosis, epitope mapping, inhibitors, artificial proteins, and various biochemical studies and purification methods (see table IV, emphasis added).

Appellants also state that the loss of biological activity stems from the fact that "binding of peptides to MAP structures lead to clustered positive charges which can lead to stronger binding than in the monomer. It has been observed in some cases that binding is strong enough to produce an inhibitor molecule. . . .[T]hese MAP structures would be expected to have increased immunogenicity and antigenicity." However, Tam simply does not imply nor make such a conclusion. Appellants have not cited to the location within the reference where Tam concludes that the MAP "structures would be expected to have increased immunogenicity and antigenicity." On the contrary, the reference provides a teaching that would allow one to conclude that the

peptides are not confined to use in "immunogenicity and antigenicity." Again Tam teaches "[m]ultimerization of peptides by branching as shown in MAPs has found application in areas other than as immunogens and vaccines (Table VI). These applications may be grouped into five areas: immunoassay and serodiagnosis, epitope mapping, inhibitors, artificial proteins, and various biochemical studies and purification methods." (emphasis added by examiner). The reference outlines different peptides with diverse biological properties that have been utilized in different biochemical applications beyond immunogenicity and antigenicity (see Table VI on page 475). Thus, based on the teaching of Tam, one would readily conclude that the peptide of Dong et al. would retain biological activity and could be used in promoting vertebrate cell adhesion to a substrate when the substrate is coated with the peptide.

Appellants also argue that the reference teaches away from the claimed subject matter because one would expect the GTPGPQGIAGQRGVV peptide in a MAP structure to be an inhibitor rather than the agonist recited in the presently claimed invention. Appellants have not provided any evidence why one would conclude that when the peptide GTPGPQGIAGQRGVV is placed in to a MAP structure why this would behave as an inhibitor. Based on the teachings of Tam, one would not make such a conclusion. Nothing within the reference makes the conclusion that all MAP structured peptides behave as inhibitors. The mere fact that there is positive clustering of peptides does not render it an inhibitor. As Appellants have stated, "the description on page 476 of Tam appears to be general phenomenon observed with MAP peptides, i.e., binding of peptides to MAP structure leads clustered positive charges which lead to stronger binding than in the monomer." (see Appellants arguments on page 9). This clustered positive charge, as Appellants have said, is a general phenomenon for MAP structure and not a phenomenon for inhibitor peptides only. Thus, one would expect the MAP structure of GTPGPQGIAGQRGVV to have stronger

binding in promoting cell adhesion than its monomer. One would not conclude that the clustered positive charge renders the peptide an inhibitor. There is simply nothing within Tam that makes this conclusion. Based on Appellants conclusion, one would NOT expect ALL peptide MAP structures to be inhibitors. However, as stated earlier, Tam teaches "[m]ultimerization of peptides by branching as shown in MAPs has found application in areas other than as immunogens and vaccines (Table VI). These applications may be grouped into five areas: immunoassay and serodiagnosis, epitope mapping, inhibitors, artificial proteins, and various biochemical studies and purification methods." Note that inhibitors are a subcategory within the genus of uses outlined by Tam.

Appellants have also implied that the combination of the references does not arrive at the claimed invention for the "function as cell-binding ligands, anti-inflammatory structures, anti-thrombogenic structures, growth factor structures, or adhesive or adhesion barrier structures." However, the MPEP states "[t]he reason or motivation to modify the reference may often suggest what the inventor has done, but for a different purpose or to solve a different problem. It is not necessary that the prior art suggest the combination to achieve the same advantage or result discovered by applicant." See MPEP 2144(IV). Here, the reference provides a reason to make the MAP structure having the peptide GTPGPQGIAGQRGVV. The MAP structure having GTPGPQGIAGQRGVV will result in structures with clustered positive charges that will lead to stronger binding to cell surfaces than their monomers due to the multiple points of contact. Further, MAPs will have increased binding to cell surfaces relative to the monomer. Accordingly, one would expect the MAP structure of GTPGPQGIAGQRGVV to have stronger binding in promoting cell adhesion than its monomer. There would have been a reasonable expectation of success because "[m]ultimerization of peptides by branching as shown in MAPs has found application in areas other than as immunogens and vaccines (Table VI). These applications may be

grouped into five areas: immunoassay and serodiagnosis, epitope mapping, inhibitors, artificial proteins, and various biochemical studies and purification methods."

For the reasons set forth in the rejection and the reasons set forth in the arguments, the rejection should be maintained.

The rejected under 35 U.S.C. 103(a) as being unpatentable over Bhatnagar (WO9102537) in view of Tam (Peptides: synthesis, structures, applications).

Appellants' Arguments

Appellants argue that claimed MAP-S structures function as cell-binding ligands, anti-inflammatory structures, anti-thrombogenic structures, growth factor structures, or adhesive or adhesion barrier structures. Appellants state that Tam describes procedures for making branched peptides for use in immunological methods and vaccines. Appellants conclude "Tam regards immunogenicity and antigenicity as necessary for producing the branched peptides described therein and draws a distinction between these two criteria."

Appellants also argue that Tam teaches away from the claimed subject matter. Appellants state that MAP structures in Tam are "inhibitors" due to the branched peptides with clustered positive charges. Appellants contended "from the teachings of Tam, one would expect that including GTPGPQGIAGQRGVV in a MAP structure would produce an inhibitor rather than the agonist recited by the present claim." Appellants argue that the rejection completely disregards this teaching away and there would not have been a reasonable expectation of success, because Tam indicates "that no agonist activity in the MAP structure bound peptide would be expected." Appellants further state that the reasoning relied upon in the rejection ("one would be lead to

believe that increased binding of branched peptides to proteins or cell surfaces compared to that of native proteins would be observed for all peptides not only inhibitors") does not establish that biological activity is retained in the MAP structure peptides.

Response to Arguments

Appellants seem to be arguing that the disclosure of Tam is confined to the application of MAP structures for immunogenicity, antigenicity and inhibitors. However, this is simply not the case. The reference on page 474 states that "[m]ultimerization of peptides by branching as shown in MAPs has found application in areas other than as immunogens and vaccines (Table VI). These applications may be grouped into five areas: immunoassay and serodiagnosis, epitope mapping, inhibitors, artificial proteins, and various biochemical studies and purification methods." In table VI, Tam teaches different peptides that have been utilized in MAP structures in differing biochemical studies, including artificial proteins such as minicollagen and synthetic enzymes (see page 475). Thus, based on Tam's teachings, one would readily conclude that MAP structures could be utilized for a vast array of differing biochemical uses of peptides and not just immunogenicity and antigenicity.

Appellants also argue that Tam does not indicate that biological activity is retained in the branched peptides. However, this too is an improper reading of the reference. Nothing within Tam establishes Appellants' conclusion. Rather, the teaching on page 474-475 would lead one to conclude that the bioactivity is retained for the MAP structured peptide since different peptides have been used in MAP structures and functioned in immunoassay and serodiagnosis, epitope mapping, inhibitors, artificial proteins, and various biochemical studies and purification methods (see table IV, emphasis added).

Appellant's also state that the of loss of biological activity stems from the fact that "binding of peptides to MAP structures leads to clustered positive charges which can lead to stronger binding than in the monomer. It has been observed in some cases that binding is strong enough to produce an inhibitor molecule. . . .[T]hese MAP structures would be expected to have increased immunogenicity and antigenicity." However, Tam simply does not imply nor make such a conclusion. Appellants have not cited the location within the reference where Tam concludes that the MAP "structures would be expected to have increased immunogenicity and antigenicity." On the contrary, the reference provides a teaching that would allow one to conclude that the peptides are not confined to use in "immunogenicity and antigenicity." Again Tam teaches "[m]ultimerization of peptides by branching as shown in MAPs has found application in areas other than as immunogens and vaccines (Table VI). These applications may be grouped into five areas: immunoassay and serodiagnosis, epitope mapping, inhibitors, artificial proteins, and various biochemical studies and purification methods." (emphasis added by examiner). The reference outlines different peptides with diverse biological properties that have been utilized in different biochemical applications beyond immunogenicity and antigenicity (see Table VI on page 475). Thus, based on the teaching of Tam, one would readily conclude that the peptide of Bhatnagar et al. would retain biological activity and could be used in promoting vertebrate cell adhesion to a substrate when the substrate is coated with the peptide.

Appellants also argue that the reference teaches away from the claimed subject matter because one would expect the GTPGPQGIAGQRGVV peptide in a MAP structure to be an inhibitor rather than the agonist recited in the presently claimed invention. Appellants have not provided any evidence why one would conclude that when the peptide GTPGPQGIAGQRGVV is placed in to a MAP structure why this would behave as an inhibitor. Based on the teachings of

Tam, one would not make such a conclusion. Nothing within the reference makes the conclusion that all MAP structured peptides behave as inhibitors. The mere fact that there is positive clustering of peptides does not render it an inhibitor. As Appellants have stated, "the description on page 476 of Tam appears to be general phenomenon observed with MAP peptides, i.e., binding of peptides to MAP structure leads to clustered positive charges which lead to stronger binding than in the monomer." (see Appellants arguments on page 9). This clustered positive charge, as Appellants have said, is a general phenomenon for MAP structure and not a phenomenon for inhibitor peptides only. Thus, one would expect the MAP structure of GTPGPQGIAGQRGVV to have stronger binding in promoting cell adhesion than its monomer. One would not conclude that the clustered positive charge renders the peptide an inhibitor. There is simply nothing within Tam that makes this conclusion. Based on Appellants' conclusion, one would NOT expect ALL peptide MAP structures to be inhibitors. However, as stated earlier, Tam teaches "[m]ultimerization of peptides by branching as shown in MAPs has found application in areas other than as immunogens and vaccines (Table VI). These applications may be grouped into five areas: immunoassay and serodiagnosis, epitope mapping, inhibitors, artificial proteins, and various biochemical studies and purification methods." Note that inhibitors are a subcategory within the genus of uses outlined by Tam.

Assuming, *arguendo*, that the teachings of Tam are confined solely to the application of immunogens and vaccines, the references combined still render obvious the claimed invention. As stated in the rejection, Bhatnagar et al. also states that the peptide can be used to raise monoclonal antibodies against the epitopic region defined by P-15[GTPGPQGIAGQRGVV] (see page 10 of Bhatnagar et al.). Specifically, Bhatnagar et al. teaches "monoclonal antibodies may be raised against the epitopic region defined by P-15 or a portion thereof, or by any of the compounds of the present invention, wherein the eptopic region is responsible for binding and biological activity." Thus, the

primary reference and secondary reference both discuss immunogenicity and antigenicity. In conclusion, one would be motivated to make the MAP structure of GTPGPQGIAGQRGVV to generate antibodies and there would have been a reasonable expectation of success to do so.

Appellants have also implied that the combination of the references does not arrive at the claimed invention for the "function as cell-binding ligands, anti-inflammatory structures, anti-thrombogenic structures, growth factor structures, or adhesive or adhesion barrier structures." However, the MPEP states "[t]he reason or motivation to modify the reference may often suggest what the inventor has done, but for a different purpose or to solve a different problem. It is not necessary that the prior art suggest the combination to achieve the same advantage or result discovered by applicant." See MPEP 2144(IV). Here, the reference provides a reason to make the MAP structure having the peptide GTPGPQGIAGQRGVV. The MAP structure having GTPGPQGIAGQRGVV will result in structures with clustered positive charges that will lead to stronger binding to cell surfaces than their monomers due to the multiple points of contact. Further, MAPs will have increased binding to cell surfaces relative to the monomer. Accordingly, one would expect the MAP structure of GTPGPQGIAGQRGVV to have stronger binding in promoting vertebrate cell adhesion than its monomer. There would have been a reasonable expectation of success because "[m]ultimerization of peptides by branching as shown in MAPs has found application in areas other than as immunogens and vaccines (Table VI). These applications may be grouped into five areas: immunoassay and serodiagnosis, epitope mapping, inhibitors, artificial proteins, and various biochemical studies and purification methods."

For the reasons set forth in the rejection and the reasons set forth in the arguments, the rejection should be maintained.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/Anish Gupta/

Primary Examiner, Art Unit 1654

Conferees:

/Cecilia Tsang/

Supervisory Patent Examiner, Art Unit 1654

/Michael G. Wityshyn/

Supervisory Patent Examiner, Art Unit 1651